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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,586	03/20/2006	Mineyuki Kubota	286945US0PCT	3390
22850 7590 02/14/2011 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER GARRETT, DAWN L				
ART UNIT 1786		PAPER NUMBER		
NOTIFICATION DATE 02/14/2011		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/572,586

**Applicant(s)**

KUBOTA ET AL.

**Examiner**

Dawn Garrett

**Art Unit**

1786

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-4 and 14-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4 and 14-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-040)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date 3/23/2010
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Continued Examination Under 37 CFR 1.114**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 29, 2009 has been entered.
2. The amendment received December 29, 2009 has been entered. Claims 1 and 5-13 are cancelled. Claims 20-25 have been newly added. Claims 2-4 and 14-25 are pending.
3. The rejection of claims 1 and 5-13 under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (EP 1333018 A1) is withdrawn due to the cancellation of these claims.

### **Claim Rejections - 35 USC § 112**

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 2-4 and 14-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites "provided than when n is 1 and the bonding positions of Ar<sup>1</sup> and Ar<sup>2</sup> in the benzene ring are symmetric in right and left, Ar<sup>1</sup> is not the same as Ar<sup>2</sup>". Formula (2) of claim 2 shows Ar<sup>1</sup> must be in a para position, but Ar<sup>2</sup> is ortho or meta. Accordingly, Ar<sup>1</sup> and Ar<sup>2</sup> of Formula (2) can not be symmetric and the limitation regarding "symmetric in right and left" and that "Ar<sup>1</sup> is not the same as Ar<sup>2</sup>" is not fully understood.

Claim 3 recites for Formula (3) that “n is 1 to 4” and that “Ar<sup>2</sup> has an ortho bonding position or a para bonding position”. The limitations are unclear, because if there are only two ortho positions and one para position on the benzene ring and if n is 4, one of the Ar<sup>2</sup> groups must be on a position that is neither ortho or para.

Claim 4 recites for Formula (4) that “n is 1 to 4” and that “Ar<sup>2</sup> has a meta bonding position or a para bonding position”. The limitations are unclear, because if there are only two meta positions and one para position on the benzene ring and if n is 4, one of the Ar<sup>2</sup> groups must be on a position that is neither meta or para.

Clarification and/or correction are required.

The dependent claims have been included in this rejection, since they are dependent upon independent claims 2-4 respectively.

#### **Claim Rejections - 35 USC § 102**

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 2-4 and 14-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Cosimbescu et al. (US 2005/0089715 A1; listed on applicant I.D.S. filed 3/23/2010).

Cosimbescu et al. discloses asymmetric anthracene compounds for an OLED device (see title and abstract). Par. 22 discloses specific compounds such as Inv-1, Inv-2, Inv-3, Inv-4, Inv-

5, Inv-8, and Inv-14 that show asymmetric compounds (see compounds on pages 2 to 6) for a layer of an OLED.

Regarding claim 20, see Inv-1 (see par. 22).

Regarding claim 21, see Inv-2 (see par. 22).

Regarding claim 22, see Inv-4 (see par. 22).

Regarding claim 23, see Inv-5 (see par. 22).

Regarding claim 24, see Inv-4 (see par. 22).

Regarding claim 25, see Inv-1 (see par. 22).

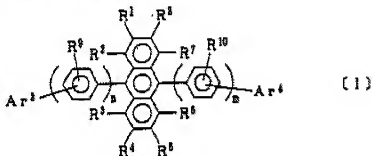
### **Claim Rejections - 35 USC § 103**

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

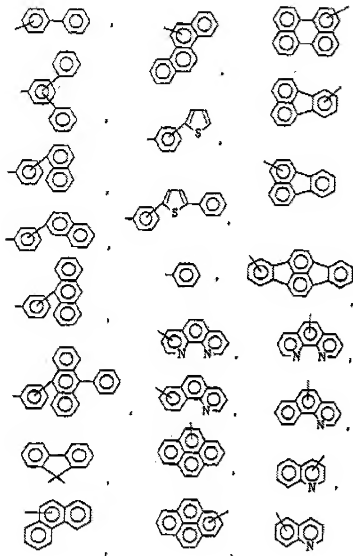
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-4 and 14-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (EP 1333018 A1). Ikeda et al. teaches organic electroluminescent elements comprising diphenylanthracene compounds in at least one of the organic layers (see abstract).

General formula [1]:



In the general formula 1 compound above, each R may be hydrogen. The Ar<sup>2</sup> and Ar<sup>4</sup> groups are independently selected as substituted or unsubstituted aryl groups having 6 to 30 carbon atoms (see par. 8-9, page 3). Ar<sup>2</sup> and Ar<sup>4</sup> are taught to include groups such as the following (see par 35, pages 7-8) per instant claims 14, 16, and 18:



General formula 1 shows that the Ar<sub>2</sub> and Ar<sub>4</sub> groups may bond at any position of the benzene ring per instant claims 2-4. With regard to instant claims 15, 17 and 19, an organic layer of the device may comprise general formula 1 with further light emitting materials, doping materials, hole injecting and electron injecting materials (see par. 51, 40-42). Hole injecting material that may be included in the layer with the general formula 1 compound (see par. 51) may include triphenylamines of the styrylamine type (see par. 43, page 19).

Although Ikeda et al. do not set forth an asymmetric compound as an example compound representing general formula 1, it would have been obvious to one of ordinary skill in the art at the time of the invention to have formed an asymmetric compound according to general formula 1, because Ikeda et al. teach Ar<sub>2</sub> and Ar<sub>4</sub> may be selected independently from one another and any bonding position on the benzene rings may be present, which would result in asymmetric compounds. One would expect the formation and use of an asymmetric compound according to general formula 1 to result in a device having excellent efficiency of light emission and heat resistance as taught, because such a compound is within the teachings of Ikeda et al. as a desirable material for forming an organic layer of an organic electroluminescent element.

#### **Response to Arguments**

10. Applicant's arguments filed December 29, 2009 have been fully considered but they are not persuasive.

Applicant argues regarding Ikeda, the reference discloses a large number of anthracene derivatives and none of the exemplified Ikeda compounds are asymmetrical. Applicant also argues Ikeda fails to disclose or suggest modifying the anthracene derivatives to arrive at the claimed asymmetric anthracene derivatives. In response, the examiner submits the fact that a reference "discloses a multitude of effective combinations does not render any particular formulation less obvious." *Merck & Co., Inc. v. Biocraft Labs*, 874 F.2d 804, 808 (Fed. Cir. 1989) *In re Corkill*, 771 F.2d 1496, 1500 (Fed. Cir. 1985) (obviousness rejection of claims affirmed in light of prior art teaching that "hydrated zeolites will work" in detergent formulations, even though "the inventors selected the zeolites of the claims from among 'thousands' of compounds")); see also, *In re Susi*, 440 F.2d 442, 445 (CCPA 1971) (obviousness



rejection affirmed where the disclosure of the prior art was “huge, but it undeniably include[d] at least some of the compounds recited in appellant’s generic claims and [was] of a class of chemicals to be used for the same purpose as appellant’s additives.”). Furthermore, “[A] reference disclosure must be evaluated for all that it fairly [teaches] and not only for what is indicated as preferred.” In re Bozek, 416 F.2d 1385, 1390 (CCPA 1969). Non-preferred embodiments can be indicative of obviousness (see In re Lamberti, 192 USPQ 278 (CCPA 1976); In re Boe, 148 USPQ 507 (CCPA 1976); In re Kohler, 177 USPQ 399 (CCPA 1973)), and a reference is not limited to working examples (see In re Fracalossi, 215 USPQ 569 (CCPA 1982)). Regarding applicant’s argument there is no motivation to arrive at the asymmetrical compounds, the examiner submits the Ar groups may be located at any bonding position on the benzene rings of the formula 1 compound taught by Ikeda.

Applicant alleges the comparative experimental data presented in Table 1 of the present specification shows superior properties. The examiner submits the experimental data is limited to a few example compounds and comparative compounds used in a very specific device structure. The data is considered insufficient to overcome the compound claims that encompass a much larger number of compounds than those tested and are not limited to use in a device structure. Also, the examples combine the anthracene derivatives with a very specific “D1” styrylamine compound. None of the claims limit the device to the “D1” compound or limit the inventive anthracene derivatives to a particular layer of an OLED. The examples are not considered to be fully commensurate in scope with the breadth of the claimed subject matter, which includes both the compound claims and the device product claims. Accordingly, clearly unexpected, superior results with respect to the claims have not been demonstrated. Applicant’s

examples in Table 1 comprise five compounds that include a limited combination of substitution patterns (i.e., ortho, meta and para) and select aryl groups. Applicant claims a variety of substitution patterns, number of aryl groups on the benzene rings and a large group of aryl groups having 6 to 50 nuclear carbon atoms.

### **Conclusion**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dawn Garrett/  
Primary Examiner, Art Unit 1786

February 7, 2011